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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER

CHEN, WEN YING PATTY

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 10/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/779,736

Applicant(s)

KUO, CHEN LUNG

Examiner

Wen-Ying P. Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 21 and 32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Amendment

Applicants' amendment filed on Aug. 23, 2005 has been received and entered. Claims 1-20 are cancelled and claims 21-32 are newly added per the Amendment. Therefore, claims 21-32 are now pending in the current application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 21-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikeda et al. (US 6671025).

With respect to claim 21: Ikeda et al. disclose in Figure 12 a liquid crystal display panel, comprising: a first substrate (element 50);

a second substrate (element 30) having a plurality of first areas (element 33, which correspond to TFT area) and a plurality of second areas (element 32, which correspond to pixel areas), wherein the first areas and the second areas on a side of the second substrate facing the first substrate, and a surface of the second substrate is higher in the first area than in the second

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areas (Column 14, lines 13-17; wherein the first area comprises of TFT elements having multiple electrode layers, therefore, is thicker in thickness than the pixel areas);

a liquid crystal layer (element 49) sandwiched between the first substrate and the second substrate;

a plurality of first protrusions (element 55 formed over element 52, the black matrix region) disposed on the first substrate (element 50) and substantially contacting the first areas of the second substrate (element 30); and

a plurality of second protrusions (element 55 formed over element 53, the color filter region) disposed on the first substrate (element 50) corresponding to the second areas of the second substrate (element 30), tops of the second protrusions separated from the second areas of the substrate by a predetermined distance.

As to claim 22: Ikeda et al. further disclose in Figure 12 that the first substrate (element 50) is a color filter substrate and the second substrate (element 30) is a thin film transistor substrate, wherein the liquid crystal display panel further comprises thin film transistor (TFT) devices formed in the first areas of the second substrate (Column 14, lines 13-17), and wherein the first protrusions (element 55 formed over element 52, the black matrix region) contact the TFT devices formed in the first areas of the second substrate.

As to claim 23: Ikeda et al. further disclose in Column 14 lines 27-29 that the first protrusions and the second protrusions have the same height.

As to claim 24: Ikeda et al. further disclose in Column 13 lines 27-29 and Column 14 lines 1-67 that the predetermined distance between the second protrusions and the second areas of the second substrate is from about 1 μ m to about 2 μ m (the cell gap is kept at 4 μ m by the

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spacer, and the thickness of the color filter layer plus the thickness of the second protrusions add up to be about 3 μ m produces a distance in the second area of about 1 μ m, which falls within the range of 1-2 μ m).

As to claim 25: Ikeda et al. further disclose that the first and second protrusions are made of the same material (Column 14, lines 27-29; wherein both are made of insulating resin, formed of the same layer).

As to claim 26: Ikeda et al. further disclose in Figure 12 that the display panel further comprising a plurality of third protrusions (element 35) disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (US 6671025) in view of Sawasaki et al. (US 2001/0026347).

With respect to claim 27: Ikeda et al. disclose in Figure 12 a liquid crystal display panel, comprising: a color filter substrate (element 50);

a thin film transistor substrate (element 30) having a plurality of first areas (element 33, which correspond to TFT area) and a plurality of second areas (element 32, which correspond to pixel areas), wherein the first areas and the second areas on a side of the thin film transistor substrate facing the color substrate, and a surface of the thin film transistor substrate is higher in the first area than in the second areas (Column 14, lines 13-17; wherein the first area comprises of TFT elements having multiple electrode layers, therefore, is thicker in thickness than the pixel areas);

a liquid crystal layer (element 49) sandwiched between the color filter substrate and the thin film transistor substrate;

a plurality of first protrusions (element 55 formed over element 52, the black matrix region); and

a plurality of second protrusions (element 35) disposed on the thin film transistor substrate (element 30) in the second areas, tops of the second protrusions separated from the color filter substrate by a predetermined distance.

Ikeda et al. fail to disclose that the first protrusions are disposed on the thin film transistor substrate in the first areas and substantially contacting the color filter substrate.

However, Sawasaki et al. teach in Paragraph 0352 of an insulating film formed on the TFT, wherein the insulating film is patterned to act as a spacer contacting the color filter substrate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display panel as taught by Ikeda et al. wherein the first protrusions are formed on the TFT contacting the color filter acting as spacers as taught by Sawasaki et al., since Sawasaki et al. teach that given that the spacer is formed from the protection film to the TFT, the manufacturing steps can be simplified at the same time as maintaining the cell gap and thus the manufacturing cost can be reduced while the multi-gap and also the liquid crystal display device whose optical characteristics such as chromaticity, transmittance, contrast, etc. are optimized can be manufactured (Paragraph 0353).

As to claim 28: Ikeda et al. further disclose in Column 14 lines 13-17 that the display panel further comprising thin film transistor (TFT) devices in the first areas of the thin film transistor substrate.

As to claim 29: Ikeda et al. further disclose in Column 10 lines 2-3 and Column 14 lines 27-29 that the first protrusions and the second protrusions have the same height.

As to claim 30: Ikeda et al. further disclose in Column 13 lines 27-29 and Column 14 lines 1-67 that the predetermined distance between the second protrusions and the second areas of the second substrate is from about $1\mu\text{m}$ to about $2\mu\text{m}$ (the cell gap is kept at $4\mu\text{m}$ by the spacer, and the thickness of the color filter layer plus the thickness of the second protrusions add up to be about $3\mu\text{m}$ produces a distance in the second area of about $1\mu\text{m}$, which falls within the range of $1\text{-}2\mu\text{m}$).

As to claim 31: Ikeda et al. further disclose that the first and second protrusions are made of the same material (Column 14, lines 27-29; wherein both are made of insulating resin, formed of the same layer).

As to claim 32: Ikeda et al. further disclose in Figure 12 that the display panel further comprising a plurality of third protrusions (element 55, which is formed over the region defined by element 53) disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer.

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Ying P. Chen whose telephone number is (571)272-8444.


The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wen-Ying P Chen
Examiner
Art Unit 2871

WPC
10/23/05


ANDREW SCHECHTER
PRIMARY EXAMINER